

CHAPTER 5. PLAN FORMULATION APPROACH

This chapter discusses the process of formulating plans for the SRWRS based on the identified problems and opportunities, and presents the planning objectives, planning constraints, and criteria for the study.

PLAN FORMULATION PROCESS

The SRWRS will be developed consistent with the programmatic ARWRI and WFA, and will conduct a project-specific analysis to evaluate the feasibility of a Sacramento River diversion that is consistent with WFA objectives. Development of the SRWRS consists of the following six steps:

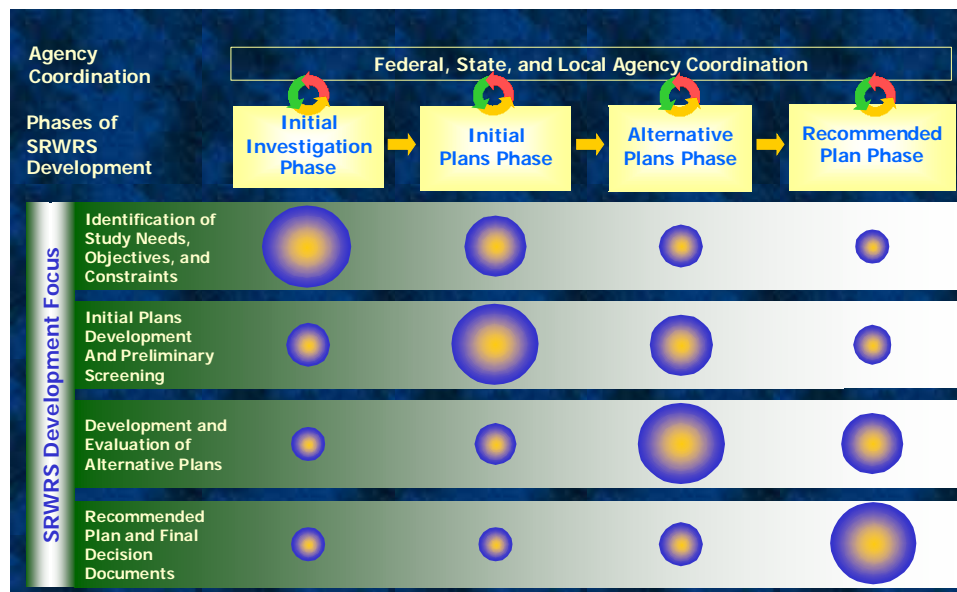
1. Identifying the existing resource conditions and future water supply reliability needs of each cost-sharing partner.
2. Defining water resources problems and opportunities to be considered in the SRWRS.
3. Developing objectives for formulating alternatives and associated planning criteria and constraints.
4. Formulating potential solutions (alternatives) to meet the identified objectives while satisfying the planning criteria and constraints.
5. Evaluating and comparing potential effects of these alternatives, including accomplishments in meeting objectives, resulting water supply and environmental impacts, and economic considerations.
6. Recommending a plan for implementation based on comparing the alternative plans.

These six steps can be incorporated generally into four phases of SRWRS development:

- **Initial Investigation Phase.** Identify without-project conditions, define resulting resources problems and opportunities, define a specific set of planning objectives, identify constraints and criteria for addressing the planning objectives, and develop a concise study goal based on study objectives.
- **Initial Plans Phase.** Identify potential resources management measures to address planning objectives, and formulate, coordinate, and compare a set of concept plans. From these concept plans, identify a set of initial alternatives.
- **Alternative Plans Phase.** From the initial alternatives, formulate specific alternative plans to address the planning objectives; evaluate, coordinate, and compare the plans; and identify a plan for tentative recommendation.
- **Recommended Plan Phase.** Complete development of a tentatively recommended plan, and prepare, coordinate, and process supporting documentation for final decisions.

Throughout these four phases, objectives and tasks of all phases are considered; however, the primary focus varies from phase to phase. Evolution of the primary study focus throughout SRWRS development is illustrated in **Figure 5-1**. Progress in each phase needs to be coordinated closely with Federal, State, and local agencies, other stakeholders, and related studies, projects, and programs. The SRWRS is currently in the Alternative Plans Phase; this **Initial Alternatives Report** concludes efforts in the previous two phases.

Figure 5-1. Phases of SRWRS Development and Corresponding Focus



PLANNING OBJECTIVES

To address the identified water supply reliability problem and satisfy the study authorizing legislation, the following planning objectives for the SRWRS were identified:

- Provide additional water supply to PCWA to meet water demands resulting from planned urban growth
- Provide additional water supply to SSWD to enhance the Groundwater Stabilization Project
- Provide additional water supply to Roseville to meet water demands resulting from planned urban growth and to facilitate a local conjunctive use program
- Provide additional water supply capacity for Sacramento to ensure water supply reliability and to provide retail and wholesale services within Sacramento's POU, and wheeling services to neighboring water purveyors to meet water demands and reduce groundwater reliance
- Maximize long-term water supply reliability in the Placer-Sacramento region through increased system interconnectivity, and source redundancy through conjunctive use of groundwater and cost-sharing partners' existing surface water rights and contract entitlements

These objectives were used for formulating alternatives and when considering the planning constraints and criteria discussed below.

PLANNING CONSTRAINTS AND CRITERIA

Planning constraints and criteria used to guide the SRWRS are described in this section.

Planning Constraints

Planning constraints primarily consist of existing Federal, State, and local laws, regulations, policies, and agreements, as highlighted below. Constraints related to water delivery quantities considered in the SRWRS are discussed first and separately due to their prevailing significance for formulating alternatives.

Water Delivery Quantities

For the SRWRS, the cost-sharing partners will consider only alternatives that use **existing** water rights and contract entitlements. **Table 5-1** summarizes requests for additional surface water diversions and treatment capacities necessary to balance projected 2030 demand and supply and to enhance water supply reliability.

Table 5-1. Water Delivery Quantities Considered in the SRWRS

Water Purveyor	Maximum Additional Annual Water Deliveries (AF)	Source	Type of Use	Additional Treatment Capacities (mgd)	Purpose of Additional Treatment Capacities
PCWA	35,000	CVP	M&I	65	Max-day demand
SSWD	29,000 ^[1]	MFP	M&I	15	Reliability and redundancy
Roseville	7,100 ^[2]	MFP	M&I	10	Max-day demand
Sacramento	17,000 ^[3]	Water rights, water wheeling requests	M&I	145	Max-day demand
Total	88,100			235	

^[1] For Water Forum average, drier, and driest years only; the WFA allows SSWD to exercise this entitlement in Water Forum wet years using diversions from the American River.

^[2] Roseville would only consider additional diversions from a river other than the American River.

^[3] The WFA does not establish a volumetric limitation for Sacramento's total diversion; the estimated additional water supply to meet its projected demand is about 17,000 AF per year, based on the difference between projected demand and the simulated average diversion for Sacramento that could be realized using then-existing diversion facilities on the American and Sacramento rivers. However, Sacramento could divert up to 81,800 AF per year under its water rights on the Sacramento River at a new diversion by reducing the diversion under its Sacramento River water rights at its existing Sacramento River WTP downstream of the confluence with the American River.

Laws, Regulations, Policies, and Agreements

Development of the SRWRS will be consistent with the following Federal, State, and local laws, regulations, policies, and agreements that govern the operation of statewide and local water supply systems:

- Satisfying requirements stipulated in PL 106-554 (the Congressional authorizing legislation for the SRWRS) to complete a feasibility study for a Sacramento River diversion that is consistent with the WFA and includes the following components: (1) development of a range of reasonable options, (2) an environmental evaluation, and (3) consultation with Federal and State resource management agencies regarding potential impacts and mitigation measures. Furthermore, Congress requires the SRWRS to be developed in coordination with the CALFED Program.
- For Roseville and SSWD, considering a diversion location from other than the American River only when a concurrent consideration of PCWA's CVP delivery exists. That is, Roseville and SSWD are not considering developing a diversion location on rivers other than the American River without PCWA.

- Observing other existing applicable laws, regulations, water rights, contracts and agreements, including, but not limited to, the following:
 - California laws, particularly Water Codes, and obligations of the cost-sharing partners in their charters and as defined in California laws
 - CVPIA, especially the dedication of (b)(2) water from CVP contract entitlements
 - SWRCB D-1641 and the WQCP
 - Existing water rights, local water contracts and/or agreements, and CVP/SWP water service contracts
 - NEPA, CEQA, and ESA, including BOs for the Sacramento River, American River, and Delta related to operations of the CVP, SWP, and local projects

Planning Criteria

In addition to the planning constraints, a series of planning criteria help guide plan formulation for consideration not only in formulating the initial set of alternatives but also in determining which alternatives best address the planning objectives. Many of the planning principles and guidelines are included in the Federal Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) and other Federal planning regulations concerning economic justification, environmental compliance, technical standards, etc. Considerations resulting from local policies, practices, and conditions also are important in the planning process for the SRWRS.

For the SRWRS, applicable principles and criteria include the following:

- Being consistent with the environmentally preferred alternative of the programmatic ARWRI, including the elements of regional groundwater conjunctive management and the position of no major dam construction in the upper American River basin.
- Being consistent with the WFA in pursuing a Sacramento River diversion to accomplish the following objectives envisioned in the agreement: (1) meeting the needs of planned future growth within the Placer-Sacramento region, (2) maintaining a reliable water supply while reducing diversions of surface water from the American River in future dry years to preserve the river ecosystem, and (3) enhancing groundwater conjunctive management to help sustain the quality and availability of groundwater for the future. Specific criteria include the following:
 - Limitations on the SRWRS cost-sharing partners' surface water diversions from the American River and associated conditions stipulated in their corresponding PSAs
 - Sustainable groundwater yields defined by the WFA in the North and South basins

List of Major Existing Laws, Regulations, Policies, and Agreements Applicable to the SRWRS

1902 Reclamation Act
 1917 Flood Control Act and subsequent Flood Control Acts
 Archaeological Resources Protection Act
 BOs for CVP and SWP Operations
 CALFED Program and Programmatic ROD
 California Department of Fish and Game Codes
 California ESA
 California Water Codes
 California Water Rights
 CEQA
 Clean Air Act
 Clean Water Act
 Coordinated Operation Agreement
 CVP and SWP Water Service Contracts
 CVPIA
 Delta Pumping Plant Fish Protection (4-Pumps) Agreement
 Executive Order 11988, Flood Plain Management
 Executive Order 11990, Protection of Wetlands
 Farmland Protection Policy Act
 Federal ESA
 Federal Water Project Recreation Act
 Fish and Wildlife Coordination Act
 Historic and Archaeological Data Preservation Act
 Indian Trust Assets
 Joint Use Agreement
 Magnuson-Stevens Fishery Conservation and Management Act
 Monterey Agreement
 National Historical Preservation Act
 NEPA
 Placer County Water Agency Act
 Porter-Cologne Act
 Protection of Historic Properties Act
 Resource Conservation and Development Program
 Sacramento Area Water Forum Agreement
 Safe Drinking Water Act
 San Joaquin River Management Agreement
 State Reclamation Board Water Code 8608 and 8571
 Urban Water Management Planning Act
 USACE Water Control Manual
 Vernalis Adaptive Management Plan
 Watershed Protection and Flood Protection Act

- Lower American River FMS, including revised minimal instream flow requirements for the lower American River and operation of PCWA's MFP for releasing replacement water per PCWA's and Roseville's PSAs¹⁷
- Water conservation and reclamation guidelines
- Being consistent with Federal planning guidelines stipulated in the P&G, including four specific criteria for consideration in formulating and evaluating alternatives: (1) completeness, (2) effectiveness, (3) efficiency, and (4) acceptability
- Being consistent with the cost-sharing partners' planning guidelines and standards
- Minimizing overall impacts on the environment to the extent feasible
- Maximizing the use of existing water rights and contract entitlements owned by the cost-sharing partners to the extent feasible
- Maximizing the overall reliability of the Placer-Sacramento region's water supply system through increased interconnectivity and source diversity
- Being cost-effective
- Maximizing the opportunity to bring the recommended plan on-line by 2010

¹⁷ As a separate effort, Reclamation is currently working with USFWS and the Water Forum to revise the FMS (see **Chapter 2** for details).

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